

REMARKS

Based on the foregoing amendments and the remarks set forth below, reconsideration of the present application is respectfully requested.

Office Action Summary

The Examiner has objected to Figure 1 of the drawings on the basis that only that which is prior art is illustrated. The Examiner has rejected claims 1-4, 11 and 14 in view of the prior art of record. Applicants are pleased to note that the Examiner has objected to dependent claims 5-10 and 12 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of the base claims and any intervening claims.

Drawings

As set forth above, the Examiner has objected to Figure 1 of the drawings on the grounds that only prior art is illustrated in Figure 1. The Examiner has requested Applicants to amend the drawing to include a legend such as --Prior Art-- indicating that the apparatus set forth in Figure 1 is prior art. Applicant herewith submits a substitute Figure 1 in compliance with 37 C.F.R. 1.121(d) in which a legend has been included as requested by the Examiner. Applicants respectfully request the Examiner to withdraw the objection to Figure 1 of the present application.

Claims

The Examiner has rejected dependent claim 13 of the present application under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, the Examiner has asserted that the phrase "or the like" renders the claim

indefinite because the claim includes elements not actually disclosed, thereby rendering the scope of the claim unascertainable. Applicants have amended dependent claim 13 of the present application to overcome the objection set forth by the Examiner. As such, Applicants respectfully request the Examiner to withdraw the objection to dependent claim 13.

The Examiner has rejected claims 1-3, 11 and 14 under 35 U.S.C. § 102(b) as being anticipated by Meng (U.S. Patent No. 4,834,611). Meng discloses a centrifugal pump 10 comprising a housing 12, a drive shaft 14, an impeller 16 affixed to the drive shaft 14 for imparting a rise in pressure to fluid passing therethrough and a vortex proof shrouded inducer 18 for favorably increasing the pressure of incoming fluid before it enters the impeller 16. The vortex proof shrouded inducer 18, which rotates with drive shaft 14, comprises a hub 20, a plurality of inducer blades 22, and a forwardly extending shroud 24 integrally connected to and supported by tips 26 of the blades 22. Labyrinth seal 28 forms a flow minimizing seal about the outer periphery of the forwardly extending shroud 24. At designation 40, surfaces 38 of an annular recess 32 and a forward lip 42 of the shroud 24 form a nozzle for favorably directing recirculating flow back into the main flow of the pump 10. Annular recess 32 also includes a mixing region 44.

Anticipation under 35 U.S.C. § 102(b) requires that each and every element as set forth in a claim is found, either expressly or inherently described, in a single prior art reference. Independent claims 1 and 14 of the present application include the limitation of "at least one downstream aperture communicating between a downstream portion of the annular flow passage and the surface of the housing swept by the impeller vanes."

As set forth in the specification, the downstream apertures perform specific functions when the flow rates of the compressor vary. When the flow rate through the compressor is high, the downstream aperture allows air to pass axially along the annular gas flow path to the impeller wheel, flowing to the impeller wheel through the downstream aperture. When the flow through the compressor is low, the direction of air flow through the annular gas flow passage is reversed so that air passes from the impeller wheel, through the downstream aperture, and through the annular flow passage in an upstream direction so that it is reintroduced into the air intake for recirculation through the compressor. Meng clearly does not expressly disclose or inherently describe a downstream aperture as claimed in independent claims 1 and 14 of the present application.

Meng discloses a labyrinth seal 28 that forms a flow minimizing seal about the outer periphery of the forwardly extending shroud 24 and the housing 12. See Meng, Fig. 1. The annular fluid flow passage disclosed in Meng, which is defined as the space between the housing 12 and the inducer shroud 24, is sealed by seal 28 thereby not allowing fluid to flow into or out of location 50. Meng clearly does not expressly disclose or inherently describe the inclusion of at least one downstream aperture communicating between a downstream portion of the annular gas flow passage and the surface of the housing swept by the impeller vanes. Applicants respectfully request the Examiner to withdraw the rejection of independent claims 1 and 14, as Meng clearly does not anticipate independent claims 1 and 14.

Applicants also respectfully point out that independent claims 1 and 14 also include the limitation of a plurality of inlet guide vanes mounted within the inducer

portion of the inlet downstream of the at least one upstream aperture to induce pre-swirl in gas flowing through the inducer portion of the inlet. In the present invention, the inlet guide vanes are not part of the impeller wheel, but rather constitute a structure separate and apart from the impeller wheel. Meng does not disclose guide vanes that are separate and apart from the impeller 16. Rather, Meng discloses a hub 20 that includes inducer blades 22 that are located upstream of the impeller 16. The inducer blades 22 and impeller 16 are one integral piece of the hub 20. In contrast, in the present invention, the inlet guide vanes are mounted within the inducer portion of the inlet and are not connected and/or otherwise associated with the impeller wheel. For this reason as well, Applicants respectfully request the Examiner to withdraw the rejection of independent claims 1 and 14 under 35 U.S.C. § 102(b) as Meng clearly does not anticipate independent claims 1 and 14.

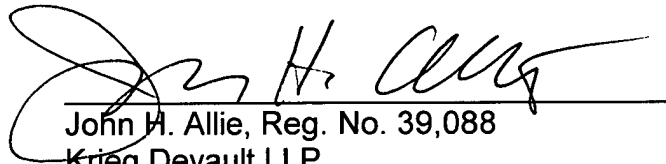
Dependent claims 2, 3 and 11 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Meng. As set forth above, Applicants respectfully believe that Meng does not anticipate independent claim 1 of the present invention. Dependent claims 2, 3 and 11 include all of the limitations of independent claim 1, and since independent claim 1 is believed to be allowable in its present form, dependent claims 2, 3 and 11 are believed to be allowable in their present form as well. As such, Applicants respectfully request reconsideration of dependent claims 2, 3 and 11 in light of the remarks made in connection with the rejection of independent claim 1.

Applicants respectfully point out that the Office Action of August 24, 2005 did not address dependent claim 4 of the present application. As such, Applicants have not addressed dependent claim 4 in this response. Claims 5-10 and 12 have been objected

to as being dependent upon a rejected base claim, but have otherwise been indicated by the Examiner as being allowable if rewritten in independent form including all of the limitations of their base claim and any intervening claims. Applicants respectfully point out that the base claim for all of these dependent claims is independent claim 1, which, as set forth above, is believed to be allowable in its present form. To that end, Applicants respectfully request the Examiner to withdraw the objection to dependent claims 5-10 and 12.

Applicants respectfully believe that all of the present pending claims of this application are allowable and respectfully request the Examiner to issue a Notice of Allowance for this application indicating the same. In the event a telephone conversation would help expedite the prosecution of this application, the Examiner is invited to contact the undersigned at (317) 636-4341.

Respectfully Submitted,



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AMENDMENTS TO THE DRAWINGS

Please substitute Figure 1 as filed with the "Replacement Sheet" labeled Figure 1 attached hereto.